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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,135	08/18/2006	Klaus Biester	1600-14600 DAR	1406
45933 7590 06/18/2009				
CONLEY ROSE, P.C. 600 TRAVIS SUITE 7100 HOUSTON, TX 77002				
EXAMINER				
MELLON, DAVID C				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
06/18/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/598,135

Applicant(s)

BIESTER, KLAUS

Examiner

DAVID C. MELLON

Art Unit

1797

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-11, 15, 16 and 21-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-11, 15, 16 and 21-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date ____

Specification

1. The disclosure is objected to because of the following informalities: On P1, the specification makes reference to the instant claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 3-6, 10-11, 15, 21-23, 25-26, and 29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Galloway, Jr (USP 4,626,237).**

Regarding claim 1, Galloway discloses a separation device for the separation of constituents of different density of well fluids from a well (Abstract) in figures 2-5 and 7 (also note some components in figure 1 are duplicated but not labeled in figure 7, see C10/L13-24) comprising:

- A container (14 - stationary containment vessel, note labeled only in figure 1, but clearly the same in figure 7)
- A feed line transporting the fluid into the container (45 - feed flange feeds into feed conduit 62)
- The fluid at least partially being separated in the container into its constituents using centrifugal force in the radial direction and or using

gravitation force in the vertical direction (C3/L25-37, further there inherently would be a gravitational force present)

- A classifier device arranged in a lower section of the container (area of container below upper baffle 76 having at least one discharge line extending in the radial direction outwards for the discharge of fluid into the container (51 - feed nozzles)
- And a plurality of delivery lines joined to the container at different levels in the vertical direction for the separation of fluid constituents (52 - oil scoop, 83 - gas scoop, 54 - water scoop, also 70 heavy gas scoop).

Regarding claim 3, Galloway further discloses a discharge line extends from a vertical pipe of the classifier device arranged centrally in the container (25 - center post, leads to the various discharges).

Regarding claim 4, Galloway further discloses wherein a fluid line terminates within the vertical pipe and the fluid enters the discharge line from within the vertical pipe (this would be the case as fluid in feeds to feed nozzles and discharges enter at various points).

Regarding claim 5, Galloway further discloses a plurality of pipe sections within the central vertical pipe with fluid feed terminating in a lower section and each section of the above having delivery lines communicating (See in figure 1 also discussion above regarding inlets and outlets, also see in figure 5 division of centerpost into multiple conduits or pipes).

Regarding claim 6, Galloway further discloses openings in the pipe casings of the vertical pipe in the region of the further pipe sections (openings such as feed nozzles 51, water scoops 54, also 52 and 83 and also 70).

Regarding claim 10, Galloway further discloses the discharge line has a number of openings on the outside in the radial direction (openings in top of 25: 46, 47, 81, 84).

Regarding claim 11, Galloway further discloses the classifier has at least one blade segment protruding radially outwards from the vertical pipe (73 - stationary bars).

Regarding claim 15, Galloway further discloses a bottom plate in the container the encloses the vertical pipe with outlet openings for at least the fluid constituent with the greatest density (baffle 72 with baffle slots 79 to allow sand and heavy gas to pass through to outlets 54 and 70).

Regarding claim 21, Galloway further discloses that a level sensor is assigned to each pipe section (see control system in figure 8 and modified as discussed at C14/L54-61)

Regarding claim 22, Galloway further discloses that at least one sensor device is disposed in an upper end of the vertical pipe (any of the sensors depicted in the control system discussed of figure 8 as modified at C14/L54-61 for the second embodiment would be at the upper end of the vertical pipe).

Regarding claim 23, Galloway further discloses a feedback line disposed between the separation device and the well (C14/L5-29).

Regarding claim 25, Galloway further discloses a frame structure for mounting the container (20 - legs).

Regarding claim 26, Galloway further discloses the separation device is connected to an electrical supply and a control unit adjacent the container (C12/L1-18, see also in figure 8 for the schematic for the first embodiment, see C14/L54-61 for discussion of adaptation to the second embodiment - the system inherently requires electricity and accordingly would require an electrical supply that would therefore have to be present).

Regarding claim 29, Galloway further discloses that the container is silo shaped (see conical formed shape in figure 7).

Regarding claim 30, Galloway further discloses that the container is of modular construction (clearly shown that the container appears to be modular).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galloway (USP 4,626,237).

Regarding claim 16, Galloway discloses all of the claim limitations as set forth above. Robertson further discloses the use of valves at each of the lines as shown in figure 8.

While Robertson does not explicitly disclose the use of rotary slide valves, it would have been obvious to one having ordinary skill in the art to have used rotary slide valves for the purpose of controlling flow and furthermore, Applicant has not established the criticality of the type of valve. Accordingly, one having ordinary skill in the art would have had a limited selection of valve options and within reasonable experimentation would have been able to determine the rotary slide valve to be the best for the task at hand.

7. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galloway (USP 4,626,237) and further in view of Collier (USP 6,346,069).

Regarding claims 2 and 9, Galloway discloses all of the claim limitations as set forth above. Robertson does not explicitly disclose the use of spiral discharge lines that are coil shaped radially outwards and extend vertically upwards.

Collier discloses a centrifugal separator in figure 3 (abstract) wherein there are two discharge hoses (76 and 78) which coil and spiral radially outwards and extend radially upwards through the central vertical shaft.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the centrifugal system of Galloway to further include discharges

such as the ones shown in Collier for the purpose of allowing easier adaptation of the separator into subsea well tree systems that were not originally designed for this specific separator's basic outlet arrangement.

8. Claims 24 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galloway (USP 4,626,237) and further in view of Pokladnik et al. (USP 4,438,817).

Regarding claim 24, Galloway discloses all of the claim limitations as set forth above. Galloway does not explicitly disclose combining the component with a subsea tree system on the sea bed.

Pokladnik et al. discloses a subsea well tree system with a separator in figure 4. The separator (100) is of similar type and configuration to that of Robertson.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Galloway to further include incorporating it into a subsea well tree in place of the separator of Pokladnik et al. for the purpose of improving subsea oil separation and reducing waste products in the water.

Regarding claim 27, modified Galloway discloses all of the claim limitations as set forth above. While modified Galloway does not explicitly disclose using a changeover valve in the well fluids feed line, it would have been obvious to one having ordinary skill in the art of chemical engineering to have included such a valve for the purpose of allowing for changing feed inputs. Accordingly, Pokladnik et al. further discloses an alternative to a changeover valve of that of a manifold merging multiple well tree streams into one (see 102). Thus, it would have further been obvious to one

having ordinary skill in the art at the time of the invention to have considered the use of a valve system rather than a manifold to allow for controlled flow from each tree individually.

Regarding claim 28, modified Galloway discloses all of the claim limitations as set forth above. While modified Galloway does not explicitly disclose a bypass line branching from the well fluids feed line, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined apparatus of Robertson and Pokladnik et al. to further include a bypass for the purpose of allowing for filter/separator maintenance while diverting flow to an alternative temporary separation system to minimize system/process downtime.

9. Claims 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson (USP 5,248,421) and further in view of Ditria et al. (USP 6,197,095).

Regarding claims 31-33, Robertson discloses a fluid separator (abstract) in figure 1 comprising:

- A plurality of spiral tubes having at least one inlet and selected outlets (see figure 1, intake 11, outlets 12a-e)
- The constituents separating using gravitation force in accordance with densities (C2/L40-55)
- A plurality of discharge compartments arranged vertically and including a discharge pipe (outlets 12a-e represent the discharge pipe and the distance between the pipe and the spiral represents a discharge holding compartment).

- The constituents fluids to be treated include sea water and oil which inherently contains gas and sand (C1/L35-50).

Robertson does not explicitly disclose mounting the apparatus within a container, or integrating the system into a subsea tree or a reinjection tree.

Ditria et al. discloses a subsea multiphase fluid separating system (abstract) wherein the separator is confined within a container and further reinjects fluid back into the well via a reinjection system (C8/L60-C9/L30).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention to have placed the separator of Robertson into a housing and added it to the oil purification system of Ditria et al. for the purpose of improving purification and recovery of oil products as well as adding an additional gravitational based separation system hooked up to provide reinjection.

Regarding claim 34, while Robertson does not disclose using rotary slide valves controlling discharge flow, it would have been obvious to one having ordinary skill in the art at the time of the invention to have used rotary slide valves as an acceptable valve for flow control since it is well known in the chemical arts that discharge and inlet ports are commonly controlled with valves for safety purposes. Furthermore, applicant has not established any benefit or unexpected results arising from the use of rotary slide valves. Accordingly, it would have been obvious to one having ordinary skill in the art to have considered and used rotary slide valves as the valve choice as there are a limited number of valve types available for a known task.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID C. MELLON whose telephone number is (571)270-7074. The examiner can normally be reached on Monday through Thursday 7:00am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797

/D. C. M./
Examiner, Art Unit 1797